EC441: Lab 3

Daniel Andronov

Friday 21$^{\text{st}}$ October, 2016

4.3   Web Server Program

Figure 1: The HTTP GET message forthe nonexistent `hhello_world.html` file


```
 3 0…  172.16.70.135        128.197.52.142      TCP      54 34676 → 47231 [ACK] Seq=1 Ack=1 Win=29200 Len=0
 4 0…  172.16.70.135        128.197.52.142      HTTP    378 GET /hello_wworld.html HTTP/1.1
 5 0…  128.197.52.142       172.16.70.135       TCP      60 47231 → 34676 [ACK] Seq=1 Ack=325 Win=64240 Len=0
 6 0…  128.197.52.142       172.16.70.135       HTTP     86 HTTP/1.1 404 File Not Found
 7 0…  172.16.70.135        128.197.52.142      TCP      54 34676 → 47231 [FIN, ACK] Seq=325 Ack=34 Win=29200 Len=0
 8 0…  128.197.52.142       172.16.70.135       TCP      60 47231 → 34676 [ACK] Seq=34 Ack=326 Win=64239 Len=0
 9 0…  172.16.70.135        128.197.52.142      TCP      74 34678 → 47231 [SYN] Seq=0 Win=29200 Len=0 MSS=1460 SACK_PERM=1 TSval=426622 TSecr=0 W…
10 0…  128.197.52.142       172.16.70.135       TCP      60 47231 → 34678 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1460
11 0…  172.16.70.135        128.197.52.142      TCP      54 34678 → 47231 [ACK] Seq=1 Ack=1 Win=29200 Len=0
12 0…  172.16.70.135        128.197.52.142      HTTP    342 GET /favicon.ico HTTP/1.1
13 0…  128.197.52.142       172.16.70.135       TCP      60 47231 → 34678 [ACK] Seq=1 Ack=289 Win=64240 Len=0
14 0…  128.197.52.142       172.16.70.135       TCP      70 [TCP segment of a reassembled PDU]
15 0…  172.16.70.135        128.197.52.142      TCP      54 34678 → 47231 [ACK] Seq=289 Ack=17 Win=29200 Len=0
16 0   172.16.70.135        128.197.52.142      TCP      74 34680 → 47231 [SYN] Seq=0 Win=29200 Len=0 MSS=1460 SACK_PERM=1 TSval=426624 TSecr=0 W…

▶ Frame 4: 378 bytes on wire (3024 bits), 378 bytes captured (3024 bits) on interface 0
▶ Ethernet II, Src: Vmware_cb:71:3f (00:0c:29:cb:71:3f), Dst: Vmware_e2:42:4f (00:50:56:e2:42:4f)
▶ Internet Protocol Version 4, Src: 172.16.70.135, Dst: 128.197.52.142
▶ Transmission Control Protocol, Src Port: 34676 (34676), Dst Port: 47231 (47231), Seq: 1, Ack: 1, Len: 324
▼ Hypertext Transfer Protocol
  ▶ GET /hello_wworld.html HTTP/1.1\r\n
    Host: 128.197.52.142:47231\r\n
    User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:43.0) Gecko/20100101 Firefox/43.0 Iceweasel/43.0.4\r\n
    Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8\r\n
    Accept-Language: en-US,en;q=0.5\r\n
    Accept-Encoding: gzip, deflate\r\n
    Connection: keep-alive\r\n
    \r\n
    [Full request URI: http://128.197.52.142:47231/hello_wworld.html]
    [HTTP request 1/1]
    [Response in frame: 6]
```

Figure 2: The HTTP GET response 404 message forthe nonexistent `hhello_world.html` file


```
 5 0…  128.197.52.142       172.16.70.135       TCP      60 47231 → 34676 [ACK] Seq=1 Ack=325 Win=64240 Len=0
 6 0…  128.197.52.142       172.16.70.135       HTTP     86 HTTP/1.1 404 File Not Found
 7 0…  172.16.70.135        128.197.52.142      TCP      54 34676 → 47231 [FIN, ACK] Seq=325 Ack=34 Win=29200 Len=0
 8 0…  128.197.52.142       172.16.70.135       TCP      60 47231 → 34676 [ACK] Seq=34 Ack=326 Win=64239 Len=0
 9 0…  172.16.70.135        128.197.52.142      TCP      74 34678 → 47231 [SYN] Seq=0 Win=29200 Len=0 MSS=1460 SACK_PERM=1 TSval=426622 TSecr=0 W…
10 0…  128.197.52.142       172.16.70.135       TCP      60 47231 → 34678 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1460
11 0…  172.16.70.135        128.197.52.142      TCP      54 34678 → 47231 [ACK] Seq=1 Ack=1 Win=29200 Len=0
12 0…  172.16.70.135        128.197.52.142      HTTP    342 GET /favicon.ico HTTP/1.1
13 0…  128.197.52.142       172.16.70.135       TCP      60 47231 → 34678 [ACK] Seq=1 Ack=289 Win=64240 Len=0
14 0…  128.197.52.142       172.16.70.135       TCP      70 [TCP segment of a reassembled PDU]
15 0…  172.16.70.135        128.197.52.142      TCP      54 34678 → 47231 [ACK] Seq=289 Ack=17 Win=29200 Len=0
16 0   172.16.70.135        128.197.52.142      TCP      74 34680 → 47231 [SYN] Seq=0 Win=29200 Len=0 MSS=1460 SACK_PERM=1 TSval=426624 TSecr=0 W…

▶ Frame 6: 86 bytes on wire (688 bits), 86 bytes captured (688 bits) on interface 0
▶ Ethernet II, Src: Vmware_e2:42:4f (00:50:56:e2:42:4f), Dst: Vmware_cb:71:3f (00:0c:29:cb:71:3f)
▶ Internet Protocol Version 4, Src: 128.197.52.142, Dst: 172.16.70.135
▶ Transmission Control Protocol, Src Port: 47231 (47231), Dst Port: 34676 (34676), Seq: 1, Ack: 325, Len: 32
▼ Hypertext Transfer Protocol
  ▶ HTTP/1.1 404 File Not Found\n
    \r\n
    [HTTP response 1/1]
    [Time since request: 0.000856992 seconds]
    [Request in frame: 4]
  ▶ Data (2 bytes)
```

Figure 3: The HTTP GET message for the `hello_world.html` file

Figure 4: The HTTP GET response message for the `hello_world.html` file

4.4 Favicon Webserver

Figure 5: The HTTP GET message for the `favicon.ioc` file
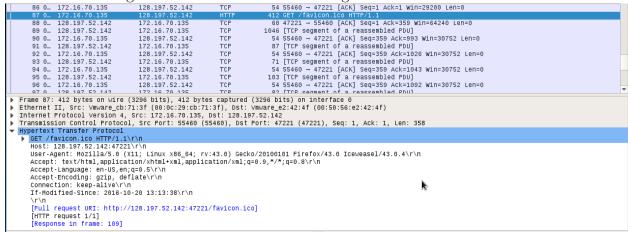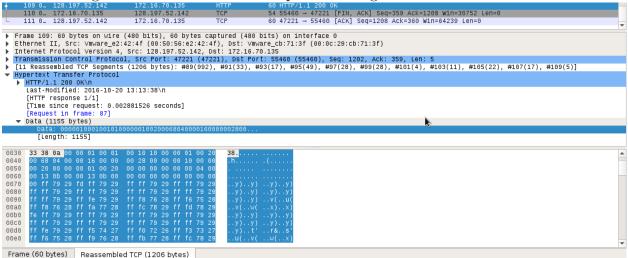

Figure 6: The HTTP GET response message for the `favicon.ico` file

4.5   Mail Client Program

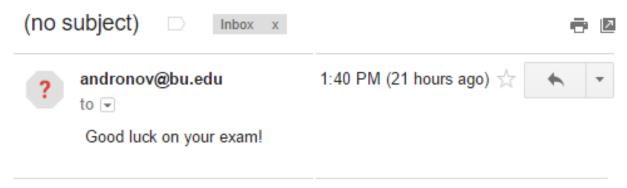Figure 7: The email sent to `andronov@bu.edu` via the mail client

Figure 8: The commandline output when an unknown address is used